

WHAT IS CLAIMED IS:

1. A light-conductive pipe comprising a body of light-conductive material having an input face having a first cross sectional perimeter at a first end and an output face having a second cross sectional perimeter at a second end, and
5 at least one integral alignment feature projecting from the body providing a third cross-sectional perimeter larger than at least one of the first or second perimeters of the faces, wherein the projecting alignment feature does not have a surface in the same plane as either face.

10 2. The light-conductive pipe of claim 1, comprising first and second integral alignment features for providing alignment of the first and second ends.

3. The light-conductive pipe of claim 1, wherein the body and
15 integral alignment feature are made of plastic.

4. The light-conductive pipe of claim 3 wherein the plastic is one or more of the group including polycarbonates, acrylics, fluoropolymers, cyclic olefins, polysulfones, polyethersulfones, and polyetherimides.

20 5. The light-conductive pipe of claim 1, wherein the alignment feature is formed at the same time as the body.

6. The light-conductive pipe of claim 1, wherein the cross
25 sectional perimeter of the alignment feature is in the shape of a quadrilateral.

7. The light-conductive pipe of claim 1, wherein the cross sectional perimeter of the alignment feature is in the shape of a six-sided polygon.

30 8. The light-conductive pipe of claim 1, wherein the body of the light-conductive pipe is bent and the input and output faces are in parallel planes.

9. The light-conductive pipe of claim 1, wherein the alignment feature comprises the same light-conductive material as the body.

10. The light-conductive pipe of claim 1, wherein the alignment
5 feature has a different refractive index than the body.

11. The light-conductive pipe of claim 1, wherein the alignment feature is opaque.

10 12. A two-dimensional array comprising multiple aligned light-conductive pipes according to claim 1, wherein the pipes are aligned in the two-dimensional array by complementary alignment features projecting from the bodies of the light pipes.

15 13. An expanding optical faceplate formed from an array of aligned light-conductive pipes according to claim 12.

14. A tiled flat-panel display system comprising a plurality of modules aligned in an array, each module comprising a flat-panel display having a
20 plurality of pixels and an expanding optical faceplate according to claim 13.

15. An integral linear array of multiple light-conductive pipes, each pipe comprising a body of light-conductive material having an input face having a first cross sectional perimeter at a first end and an output face having a
25 second cross sectional perimeter at a second end, and at least one alignment feature projecting from the bodies of the pipes which spaces and integrally joins the bodies of the multiple pipes in a linear array, wherein the alignment feature does not have a surface in the same plane as either the input or output faces of the pipes and which further provides for complementary two dimensional alignment
30 between the integrally joined light pipes and additional light pipes in a second integral linear array having a complementary cross-sectional configuration.

16. The array of light-conductive pipes of claim 15, comprising first and second integral alignment features for providing alignment of the first and second ends.

5 17. The array of light-conductive pipes of claim 15, wherein the bodies and integral alignment feature are made of plastic.

18. The light-conductive pipe of claim 17 wherein the plastic is one or more of the group including polycarbonate, acrylics, fluoropolymers,
10 cyclic olefin, polysulfone, polyethersulfones, and polyetherimide.

19. The array of light-conductive pipes of claim 15, wherein the bodies of the light-conductive pipe are bent and the input and output faces are in parallel planes.

15 20. The array of light-conductive pipes of claim 15, wherein the alignment feature comprises the same light-conductive material as the bodies.

21. The array of light-conductive pipes of claim 15, wherein the
20 alignment feature has a different refractive index than the bodies.

22. The array of light-conductive pipes of claim 15, wherein the alignment feature is opaque.

25 23. The array of light-conductive pipes of claim 15, wherein the alignment feature is formed at the same time as the bodies.

24. A two-dimensional array of light-conductive pipes comprising a stack of multiple integral linear arrays of light-conductive pipes according to
30 claim 16, wherein the integral linear arrays are aligned in the two-dimensional array by complementary alignment features projecting from the bodies of the integrally joined light pipes in the integral linear arrays.

25. The stack of arrays of light-conductive pipes of claim 24,
wherein the faces of the pipes form a regular square grid.

5 26. The stack of arrays of light-conductive pipes of claim 24,
wherein the faces of the pipes form a regular hexagonal grid.

27. An expanding optical faceplate formed from a stacked array of
light-conductive pipes according to claim 24.
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28. A tiled flat-panel display system comprising a plurality of
modules aligned in an array, each module comprising a flat-panel display having a
plurality of pixels and an expanding optical faceplate according to claim 27.

15 29. The tiled flat-panel display system claimed in claim 28,
wherein the flat-panel display is a liquid crystal display.

30. The tiled flat-panel display system claimed in claim 28,
wherein the flat-panel display is an organic light emitting diode display.
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31. The tiled flat-panel display system claimed in claim 28,
wherein the faceplates of adjacent aligned modules have complementary
protrusions and indentations to provide alignment features for the faceplates.

25 32. The tiled flat-panel display system claimed in claim 31,
wherein each faceplate comprises rows of light pipes, at least one row extending
at least one light pipe beyond another row.